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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,270	12/12/2003	James B. Piket	33692.03.1429	3597

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VEDDER PRICE KAUFMAN & KAMMHOLZ
222 N. LASALLE STREET
CHICAGO, IL 60601

EXAMINER

JAMAL, ALEXANDER

ART UNIT	PAPER NUMBER
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2614

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06/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/735,270

Applicant(s)

PIKET ET AL.

Examiner

Alexander Jamal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, as per claim 12, the information generator to produce location information, and the echo canceling devices that are coupled to the generator (and the manner in which they are coupled to the generator) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

1. The disclosure is objected to because of the following informalities: It is not clear what the 'echo canceller coefficient logic' and "echo canceller filter" of the claims, the 'echo canceller adaptive filter' 84 of Fig. 1, and the echo canceller coefficient logic 218 and filter 216 of Figs. 2, and 4 are doing. The specification (page 5 para. 9-10) alludes to the 'second echo canceller' as functioning in the same manner as the first canceller, However, none of the echo canceller blocks 84, 216 or 218 receive any signals from downlink data 52. What echo are they canceling? The specification is not clear as to how the 'second echo canceller' is using the two input signals (as per figs. 1,2,4), or exactly what 'echo' it is canceling, or what the coefficients are being adapted to. How can a canceller estimate echo without receiving a downlink signal? It further is not clear what is happening to the three inputs going into canceller 84 (Fig. 1), or what is happening in canceller stage 216 (Figs. 2,4), as they are not connected in the same manner as the first echo canceling stage ((block 210 of Fig. 2, or blocks 80 and 82 of Fig. 1). Additionally, it is not clear what the amplifier 430 in Fig. 4 is doing with the two input signals. Are the signals combined? amplified separately? Subtracted, added? Examiner requests clarification or correction of the claim language, figures 1-4, and the specification.

For the purpose of examination, examiner assumes applicant can overcome the rejection and the systems shown in Figs. 1,3,4 are shown correctly.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-6,9-11,18-23** rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (Fig. 1), and further in view of Sih (5646991).

As per **claim 1**, Applicant's admitted prior art discloses an echo canceller circuit comprising (Fig. 1), Pre-Noise suppression logic (blocks 80, and 82), echo canceller coefficient logic (inherently comprised in block 84 for the purpose of performing the echo cancel function of block 84). Block 84 further comprises an echo canceller filter (as named in the block) that is coupled to noise suppression logic 20, and must inherently be coupled to the coefficient logic in order to perform the echo canceling function. The prior art discloses noise suppression stage 20 after the second echo cancellation stage. However, applicant's admitted prior art does not show a noise suppression stage coming after the 'pre-noise suppression logic' but before the echo canceller filter.

Sih discloses an acoustic echo canceller (Fig. 5) comprising noise suppressor 146 coupled before the echo canceller. Sih teaches that this filter is a noise remover (suppressor) that removes background noise (Col 9 lines 15-35). It would have been

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obvious to one of ordinary skill in the art at the time of this application to implement a high pass filter noise suppressor before either echo cancellation stage in order to remove a portion of the background noise. Examiner notes that applicant's prior art discloses the use of cascaded noise removing techniques in order to achieve the most noise free signal as possible.

As per **claim 5**, it is rejected as per the claim 1 rejection. Applicant's admitted prior art Fig. 1 discloses adder 82 coupled to second echo canceller 84 that inherently comprises coefficient logic.

As per **claims 9,18,22** it is rejected as per the claim 1 rejection. Applicant's admitted prior art may be implemented in a car audio system that inherently requires a 'housing' to support the circuitry. Applicant's prior art figure 1, when implemented in an audio system requires a transceiver for the purpose of generating or interfacing with the uplink and downlink data. The digital filters of applicant's admitted prior art inherently comprise microprocessors with software comprising the method to be performed by the hardware, for the purpose of controlling the digital processing hardware.

As per **claims 2-4,19-21.23** they are rejected as per the claim 9 rejection.

As per **claim 6,11**, it is rejected as per the claim 9 rejection.

As per **claim 10**, the car phones disclosed in applicant's admitted prior art specification inherently comprise wireless transceivers for the purpose of being able to operate in the car.

4. **Claims 13-17** rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (US20040078104A1) in view of Applicant's admitted prior art (Fig. 1) in view of Sih (5646991), and further in view of Takahashi et al. (6891954).

As per **claim 13**, Nguyen discloses an audio system in a vehicle comprising a playback module Fig. 2 that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. However Nguyen does not disclose applying an echo canceller to the phone in the car audio system, or a common output amplifier that is coupled to the outputs from all of the audio sources.

Applicant's admitted prior art in view of Sih discloses the echo canceller components that may be used in an in-car phone system (specification page 3) as per the claim 9 rejection. It would have been obvious to one of ordinary skill in the art at the time of this application to implement an echo canceller in the in-car phone system of Nguyen for the purpose of canceling unwanted echoes.

Takahashi discloses an in car audio system that comprises output amplifier 24 (Fig. 2) that accepts inputs from multiple input devices 11,12. Takahashi teaches that this configuration will allow for the input devices (such as the tuner or tape deck) to be easily interchanged and the user can easily interface various input devices with varying output amplifiers. (Col 3 lines 15-55). The power amplifier is also implemented in order to provide a signal with enough power to drive the speaker (Col 2 line 60 to Col 3 line 20)

It would have been obvious to one of ordinary skill in the art at the time of this application to implement a common buffer amplifier and output speaker amplifier for the purpose of providing a more universal interface and in order to provide enough power to drive the output speaker.

As per **claim 14**, both Nguyen and applicant's admitted prior art disclose cell phones that inherently require wireless transceivers for the purpose of performing the wireless phone functions.

As per **claim 15-17**, they are rejected as per the claim 13 rejection.

5. **Claims 7,8**, rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (Fig. 1) in view of Sih (5646991) as applied to claim 5, and further in view of Takahashi et al. (6891954).

As per **claim 7**, applicant's admitted prior art in view of Sih discloses the echo canceller system that may be implemented in a car phone, including microphone 70, speaker 50, D/A 40, A/D 60, but they do not specify an output amplifier.

Takahashi discloses an in car audio system that comprises output amplifier 24 (Fig. 2) that accepts inputs from multiple input devices 11,12. Takahashi teaches that this configuration will allow for the input devices (such as the tuner or tape deck) to be easily interchanged and the user can easily interface various input devices with varying output amplifiers. (Col 3 lines 15-55). The power amplifier is also implemented in order to

provide a signal with enough power to drive the speaker (Col 2 line 60 to Col 3 line 20). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a common buffer amplifier and output speaker amplifier for the purpose of providing a more universal interface and in order to provide enough power to drive the output speaker.

As per **claim 8**, applicant's admitted prior art Fig. 1 discloses microphone 70 and speaker 50.

6. **Claim 12** rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (US20040078104A1) in view of Applicant's admitted prior art (Fig. 1) in view of Sih (5646991) as applied to claims 9 and 10, and further in view of Lau et al. (6122506).

As per **claim 12**, Nguyen discloses an audio system in a vehicle comprising a playback module Fig. 2 that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. However Nguyen does not disclose applying an echo canceller to the phone in the car audio system, or location hardware and software implemented with the cellular phone..

Applicant's admitted prior art in view of Sih discloses the echo canceller components that may be used in an in-car phone system (specification page 3) as per the claim 9 rejection. It would have been obvious to one of ordinary skill in the art at the

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time of this application to implement an echo canceller in the in-car phone system of Nguyen for the purpose of canceling unwanted echoes.

Lau teaches a combine cell phone and GPS system with microprocessor (which inherently comprises software to perform the phone and GPS functions (ABSTRACT). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a GPS function in the phone of Nguyen for the advantage (inherent to a GPS system) of providing the user with location monitoring.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

Examiner Alexander Jamal
June 17, 2007

A handwritten signature in black ink, appearing to read 'Alexander Jamal', is written over the printed name and date.